



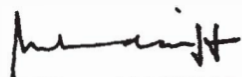
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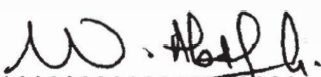
**METAL FORMERS SENDIRIAN BERHAD
A CASE STUDY IN THE AREA OF PRODUCTION AND
INVENTORY PLANNING AND CONTROL SYSTEM
(MANUALIZED MRP SYSTEM)**


Abdul Apet bin Hassan

FEP 1988 10

It is hereby certified that we have read this project entitled 'Metal Formers Sdn. Bhd.: Case Study in the Area of Production and Inventory Planning and Control System (Manualized MRP System)' by Abdul Apet Hassan, and in our opinion it is satisfactory in terms of the scope, quality, and presentation as partial fulfilment of the requirements for the degree of Master of Business Administration



.....
MOHD. ARIFF HUSSEIN, Ph.D.
Professor/Dean
Faculty of Economics and Management
Universiti Pertanian Malaysia
(Chairman Board of Examiners)


.....
WAN ABDUL RAHMAN WAN ALI
Faculty of Economics and Management
Universiti Pertanian Malaysia
(First Reader/Supervisor)


.....
ZAINAL ABIDIN KIDAM
Associate Professor
Faculty of Economics and Management
Universiti Pertanian Malaysia
(Second Reader)

This case study was submitted to the Senate of Universiti
Pertanian Malaysia and was accepted as partial fulfilment of the
requirements for the Degree of Master of Business Administration.

Date: 1 JUL 1988


.....
SULAIMAN M. YASSIN, Ph.D.
Professor and
Dean of Graduate Studies

METAL FORMERS SENDIRIAN BERHAD

A CASE STUDY IN THE AREA OF

PRODUCTION AND INVENTORY PLANNING AND CONTROL SYSTEM

(MANUALIZED MRP SYSTEM)

By

Abdul Apet bin Hassan

**A case study submitted in partial fulfilment of the
requirements for the degree of Master of Business
Administration in the Faculty of Economics and
Management, Universiti Pertanian Malaysia**

June 1988



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EXECUTIVE HIGHLIGHTS

This case report had identified the organizational and operational problem(s) and issue(s) of Metal Formers Sendirian Berhad, in particular its production and inventory planning and control system.

At present, Metal Formers Sdn. Bhd. is plagued by the shortage of cash that caused it to operate far below normal productive level. The problem of lack of funds indirectly had caused the company to suffer from incompetence and unskilled personnel, lack of technical personnel, and lack of technological capabilities to operate an efficient and effective marketing and manufacturing functions. These problems had allowed the company to operate without proper control systems thus resulting in high production costs, low productivity and profitability, low quality and uncompetitive products, high selling price, and slow introduction of new product. Due to these causal effects, the company was not able to achieve high sales volume and high market share. If this situation perpetuates, the company will continue to operate below capacity, and will never be able to realize a positive return on investment (ROI).

An evaluation of the possible alternatives showed that there is room for improving the current situation provided Metal Formers Sendirian Berhad take immediate steps in resolving the problems.

The suggested proposals to be implemented are quite simple. The company should start with the manual inventory control system, and then proceed with the implementation of the "manualized" Material Requirements Planning system. The study showed that a proper execution of production and inventory planning and control system will help to reduce misdeliveries and inventory, which in turn will reduce money tied-up in these items. This will minimize if not totally eliminate the existing tight cash flow problem.

RINGKASAN EKSEKUTIF

Laporan kajian kes ini telah dapat mengenalpasti beberapa masaalah dan isu organisasi dan operasi yang wujud di syarikat Metal Formers Sendirian Berhad, terutamanya di dalam sistem perancangan dan kawalan pengeluaran dan inventories.

Pada masa ini, Syarikat Metal Formers Sdn. Bhd. sedang mengalami kekurangan wang yang agak runcing, menyebabkan ianya beroperasi di bawah paras produktif yang normal. Masaalah kekurangan wang ini, secara tak langsung telah menyebabkan syarikat ini mengalami kekurangan pegawai-pegawai yang cekap dan mahir, kekurangan kakitangan teknikal dan juga tidak mempunyai kebolehan teknologi yang tinggi untuk mengelolakan fungsi pemasaran dan pengeluaran yang licin dan berkesan. Masaalah-masaalah tersebut telah juga menyebabkan syarikat ini beroperasi tanpa mempunyai satu sistem kawalan yang sesuai yang mana telah menyebabkan kos pengeluaran yang tinggi, produktiviti dan keuntungan yang rendah, mutu keluaran yang tidak sekata dan keluaran yang tidak setanding. Ia juga menyebabkan harga jualan terpaksa ditetapkan pada paras yang agak tinggi, dan selalunya lambat untuk melancarkan keluaran-keluaran baru. Hasil dari sebab-sebab yang berkait ini, maka syarikat ini tidak berkemampuan untuk mencapai jumlah jualan dan kongsi pasaran yang tinggi. Jika keadaan ini berterusan, syarikat ini akan terus beroperasi di bawah paras keupayaan, dan tidak akan dapat memperolehi pulangan ke atas pelaburan yang positif.

Penilaian ke atas beberapa pilihan yang ada jelas menunjukkan masih terdapat beberapa peluang bagi memperbaiki keadaan sekarang dengan syarat syarikat Metal Formers Sdn. Bhd. mengambil langkah-langkah dengan segera untuk menyelesaikan masaalah ini.

Cadangan-cadangan yang telah dikemukakan untuk dilaksanakan adalah agak mudah. Syarikat Metal Formers Sdn. Bhd. hendaklah pertamanya melaksanakan sistem inventori manual, dan kemudiannya perlu diikuti dengan sistem "Manualized Material Requirements Planning". Kajian telah menunjukkan, bahawa satu pelaksanaan sistem perancangan dan kawalan pengeluaran dan inventori yang betul boleh menolong mengurangkan wang yang terikat pada barang-barang tersebut. Ini dengan sendirinya akan dapat mengurangkan, jika tidak menghapuskan keseluruhan, masaalah kekurangan wang yang genting itu.

SECTION A

CASE TEXT

In one evening on February 1988, Encik Mohd Mydin, the General Manager of Metal Formers Sendirian Berhad, (hereafter referred as MFSB), while sitting alone in management room(1), was analyzing last year's company performance and pondering about some issues discussed during the morning meeting he had had with his staff. He was not satisfied at all with the overall company performance for the financial year ended January 1988. He was very concerned with the net loss the company had experienced for the second consecutive year. There were a lot of reasons and excuses given by the marketing personnel for not achieving the budgeted sales. The gross margin was so small that it cannot help to reduce the deficit even with the commendable sales turnover of about \$3.3 million considering the small number of staffs it had and the low scale of operation in which it was engaged.

The GM murmured and asked himself a number of questions; "Was there anything wrong? Was it because of my managerial style? Can it be our pricing policy, product costing or manufacturing inefficiency? Was it due to mismanagement? There must be some kind of measures or strategies that can be formulated and implemented to correct these problems. This state of affair somehow has to be stopped and the company should adopt...."

(1) The management team comprising of the GM, Mohd Mydin Nordin, the OM, Faisal Haji Ismail and the marketing coordinator, Naburo Maeda. They share one common room.

"Hey! are you dreaming?" shouted Faisal, the operation manager as he enters the room. "Oh no! I was just pondering about our last year's performance and some issues raised during this morning meeting" replied Mydin. "I am very concern about everything. Don't you feel so?" "Of course I do" replied Faisal. "That was past, and we can't do anything about it now. We should look ahead. I hope 1988 will be a good year judging from the confirmed sales that we have received so far. My concern right now is how can we manage to fulfill our customers' orders on time and manage our operation without so many problems? I know we are going to face a hell of a lot of problems. We have to do something on our production scheduling. May be we ought to computerize our production planning and scheduling and probably we should try an integrated MRP system".

"Anyway we need to get things done and come out with strategies and report before our board meeting next week" added Mydin. "Can you ensure that whatever programs you are thinking of, MRP or what not, can be ready by the end of March as our delivery of Clarion job(2) will commence 'n May? We need to order the materials and issue the work orders now. At the same time we have Sharp-Roxy job(3) to take care of" said Mydin.

(2) Clarion job is the job awarded by the Clarion Sdn. Bhd. a company engaging in assembling and manufacturing of automotive radio cassette players.

(3) Sharp-Roxy job involves metal stamping of parts and subassembly of washing machine cabinet.

COMPANY BACKGROUND

MFSB was established on April 25, 1984 as a subsidiary of Sapura Holdings Sendirian Berhad with 100,000 authorised share of \$1 each and initial paid up capital of \$100,000. During the period from April 25, 1984 until the end of financial year 1986 (31st. January 1987), the authorised share capital was increased to \$250,000. Paid up capital was also increased from \$100,000 to \$240,000. Half of the paid up capital came through bonus issue of 1:1 out of retained profits brought forward from 1986. The major shareholders of the company make up the board of directors. It is chaired by Datuk Shamsuddin Bin Abdul Kadir. The shareholders of MFSB and their share of the equity is shown in Exhibit I.

EXHIBIT I BOARD OF DIRECTOR AND EQUITY STRUCTURE

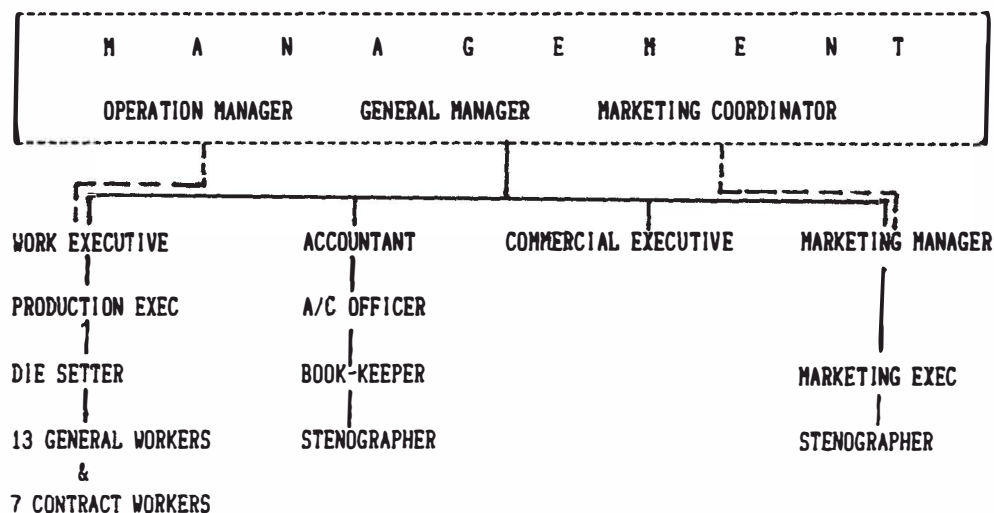
| The Directors | Company | Paid-up | Equity |
|----------------------------|---------|---------|--------|
| Dato' Shamsuddin Abd Kadir | Sapura | 122,399 | 51.0% |
| Rameli Bin Musa | Sapura | 1 | - |
| Mohd Mydin Bin Mohd Nordin | MFSB | 58,800 | 24.5% |
| Faisal Bin Haji Ismail | MFSB | 58,800 | 24.5% |

In an attempt to pursue growth strategy and to take advantage of the opportunities available during that time, the company in 1985 acquired 49 percent of the unquoted shares of Tubular Metal Forms Sdn. Bhd. (TMF), a company incorporated in Malaysia. The principal activity of TMF is fabrication of telephone and transmission poles and

tubular street lighting columns. TMF only carries out the fabrication works and it depends entirely on MFSB for the sales. In the following year, the company acquired a 75 percent interest in a newly incorporated subsidiary, Peninsular Steel Galvanizing Sdn. Bhd. (PSG). PSG provides hot dip galvanizing services for MFSB's products as well as outsiders. It sometimes provides services to local contractors competing indirectly with MFSB.

At present, the company has a total of 33 employees headed by a management team. Production department has 13 permanent and 7 temporary workers. The operation manager is assisted by work executive Abdul Razak Omar and production executive, Fauzi Nuruddin for day to day operation. The production workers are located either in main plant in Petaling Jaya or in the Shah Alam factory. The latest organization structure showing the three functional areas is shown in Exhibit II.

EXHIBIT II
PRESENT ORGANIZATIONAL STRUCTURE OF MFSB.



PRODUCTS AND MANUFACTURING ACTIVITIES

The company is principally engaged in the manufacture and marketing of galvanized metal products and accessories. The company has sufficient skilled and unskilled workers to carry out steel fabrication and hot dip galvanizing as well as precision metal works to fulfill both quality and economic requirements. Refer Exhibit III for short description and definition of metal fabrication industry. It is currently engaged in the production of;

- i. Highway furniture products;
 - "Pagaraya" (highway guardrails) - late 1986.
 - Galvanized street lighting columns - 1985.
 - Road Signs - mid 1987.
- ii. Hot dip galvanizing service - early 1986.
- iii. Steel fabrication and engineering - 1985.
 - Power transmission poles.
- iv. Metal stamping parts - since incorporation.

The company is operating in a rented building at Jalan 227B, Petaling Jaya. The building comprises an office and machine shop in which all the press works are carried out. The making of road signs and the associated works are carried out in a rented factory at Padang Jawa. Hot dip galvanizing and steel fabrication are performed in a separate factory owned by the company at Jalan Bukit Kemuning, Kelang, nearby HICOM Industrial Estate. The list of machines and equipment located in the main plant and those at Padang Jawa factory are listed in Exhibit IV.

EXHIBIT IV
LIST OF MACHINES AND EQUIPMENT IN MFSB

| Item | Equipment Descriptions | QTY. | Make | Capacity |
|------|----------------------------|------|-----------|--------------|
| 1. | 35 ton press machine | 2 | Komatsu | 100 stroke/s |
| 2. | 60 ton press machine | 2 | Komatsu | 70 stroke/s |
| 3. | 80 ton press machine | 1 | Komatsu | 60 stroke/s |
| 4. | 80 ton press machine | 1 | Aida | 60 stroke/s |
| 5. | 30 ton auto through punch | 1 | Miyagi | >= 0.3mm t. |
| 6. | 160 ton press brake m/c | 1 | Komatsu | 30 - 50 s/s |
| 7. | 200 ton press brake m/c | 1 | Komatsu | 30 - 50 s/s |
| 8. | Spot welding machine | 2 | Aromatic. | |
| 9. | Shearing machine (200 ton) | 1 | Komatsu | 0.6-10mm th. |
| 10. | MIG welding machine | 5 | Toaseki, | MIG 250 |
| 11. | Drilling machine | 2 | Hitachi | |
| 12. | Hand drill | 2 | Hitachi | |
| 13. | Grinder | 1 | Hitachi | |
| 14. | Abrasive cutter, 480 RPM | 1 | | |
| 15. | Oxy-acetylene set | 1 | | |
| 16. | Vacuum machine (4' by 12') | 1 | 3M, HLVA | |

With the exception of highway guardrails, the rest of the company's products are made internally. The fabrication of highway guardrails are subcontracted to a private company, Oriental Metal Industries Sdn. Bhd., located in Section 16, Shah Alam before sending for galvanizing at PSG. The company imports mother coil steel from Korea as a raw material for the fabrication of guardrail. The lead time for this raw material is normally 3 months.

FINANCIAL PERFORMANCE

For the past four years, the sales turnover of the company has been fluctuating. Sales were good in the first year and this continued on the second year of operation. In the first nine months of operation in 1984, the company achieved sales of about \$900,000 and increased by more than 400 percent over the 1984 figures to about \$4,600,000 in 1985. This has contributed to hefty profits of about \$250,000 in 1985 despite its newness in the industry. The company goal was then to build up a strong foundation and continue to grow through vertical integration. The loss in the first trading year was expected.

The main contribution to the company's growth comes from the sales of telephone and telecommunication accessories to Jabatan Telekom Malaysia (JTM). It is interesting to note that during those two years, Uniphone Sdn. Bhd., a subsidiary of Sapura Holding Sdn. Bhd. together with Binafon Telecommunications, Sri Communication and Electroscon Telecommunications was given a multi-billion ringgits turnkey project by JTM for the construction of exchange buildings and modernization of telecommunications system in Malaysia. Uniphone purchased most of their requirements from MFSB.

However, in the third year of operation, the company made a substantial loss of about \$1 million from the sales of about \$2,600,000. The main reason behind this big loss

was due to the privatization of JTM. Privatization of JTM has brought the fabrication of telecommunication accessories almost to a standstill. There was a huge inventory of accessories in MFSB stock which had to be written down and subsequently written off. Most of the company's sales then came from Jabatan Kerja Raya (JKR), Local Municipals for street lighting columns, and from private companies for precision metal stamping parts and subassemblies. 1987 can be said to be a turning year despite incurring operation loss of about \$250,000. Their highway furniture products which were introduced between end of 1986 to middle of 1987 had been recognized and accepted by JKR. Tender businesses for highway guardrails and road signs started flowing in and with a few long term contracts for the supply of metal stamping parts to Clarion Sdn Bhd. and Sharp-Roxy Appliances Sdn. Bhd. The turnover improved by about 25 percent from 1986 and projected to improve substantially in 1988.

MFSB's Statement of profit and loss accounts for the period ending 31st January 1985 to 1988 and consolidated balance sheets as at 31st of January 1985 to 1988 are shown in Exhibits V and VI. Exhibits VII and VIII show the statement of profit and loss accounts by product and the manufacturing accounts for the year ending 31st. January 1987 and 1988. The breakdown of the financial expenses for the same periods are also shown in Exhibit IX.

EXHIBIT V
STATEMENT OF PROFIT AND LOSS ACCOUNTS
FOR THE PERIOD ENDING 31st. JANUARY

| | 1985 | 1986 | 1987 | 1988(**) |
|--|-------------------|--------------------|----------------------|----------------------|
| TURNOVER | \$897,939 | \$4,609,996 | \$2,667,427 | \$3,290,999 |
| PROFIT/(LOSS) BEFORE TAX | (\$31,236) | \$260,473 | (\$820,813) | (\$254,271) |
| SHARE OF PROFIT/(LOSS) IN ASSOCIATED COMPANY | - | - | (\$227,078) | - |
| TOTAL PROFIT/(LOSS) | (\$31,236) | \$260,473 | (\$1,047,891) | (\$254,271) |
| ACCUMULATED PROFIT/(LOSS) CARRIED FORWARD (*) | (\$31,236) | \$229,237 | (\$818,654) | (\$1,072,925) |

Note:(*) The figures do not take into account of minority interest, taxes loss or profits attributable to or from the group and bonus issue.

(**) Unaudited accounts.

EXHIBIT VI
CONSOLIDATED BALANCE SHEET AS AT 31-1-85 TO 88

| | 1985 | 1986 | 1987 | 1988(**) |
|----------------------------------|--------------------|--------------------|----------------------|----------------------|
| CURRENT ASSETS | | | | |
| Cash and bank balances | \$110,209 | \$41,628 | \$3,247 | \$7,637 |
| Trade debtors | \$372,039 | \$1,087,582 | \$680,835 | \$1,196,525 |
| Other dabtors | \$19,211 | \$254,094 | \$59,575 | \$73,572 |
| Stocks | \$288,067 | \$449,287 | \$428,199 | \$790,946 |
| Due from associated co. | - | \$260,356 | \$243,331 | \$564,521 |
| | \$789,526 | \$2,092,947 | \$1,415,187 | \$2,633,201 |
| CURRENT LIABILITIES | | | | |
| Bank overdrafts | - | \$47,359 | \$115,321 | \$129,902 |
| Trade creditors | \$118,960 | \$842,165 | \$626,280 | \$724,693 |
| Other creditors | \$75,011 | \$442,151 | \$225,423 | \$605,954 |
| Term loans | \$23,331 | \$70,552 | \$130,733 | \$64,749 |
| Due to associated co. | \$520,363 | \$712,212 | \$1,491,111 | \$2,380,323 |
| | \$737,665 | \$2,114,439 | \$2,588,868 | \$3,905,621 |
| NET CURRENT LIABILITIES | \$51,861 | (\$21,492) | (\$1,173,681) | (\$1,272,420) |
| INVESTMENTS | - | \$117,600 | \$297,598 | \$297,598 |
| FIXED ASSETS | \$144,573 | \$409,244 | \$588,077 | \$454,149 |
| TERM LOANS | (\$176,669) | (\$156,115) | (\$201,640) | (\$223,246) |
| DEFERRED TAXATION | - | (\$103,000) | (\$103,000) | (\$103,000) |
| | \$19,765 | \$246,237 | (\$592,646) | (\$846,919) |
| Represented by: | | | | |
| SHARE CAPITAL | \$51,001 | \$120,000 | \$240,000 | \$240,000 |
| ACCUMULATED PROFIT/(LOSS) | (\$31,236) | \$126,236 | (\$832,646) | (\$1,086,919) |
| note: | \$19,765 | \$246,236 | (\$592,646) | (\$846,919) |
| (**) Unaudited accounts | | | | |

EXHIBIT VII
STATEMENT OF PROFIT AND LOSS ACCOUNTS BY PRODUCT
FOR THE PERIOD ENDING 31st. JANUARY 1987 - 1988

| | 1987 | 1988 ** |
|--------------------------|-------------|-------------|
| GUARDRAILS | - | \$1,483,182 |
| METAL STAMPINGS | - | \$963,522 |
| ROAD SIGNS | - | \$721,257 |
| OTHERS | - | \$123,037 |
| SALES | \$2,667,427 | \$3,290,998 |
| COST OF GOODS SOLD | \$2,323,769 | \$2,980,221 |
| GROSS PROFIT/(LOSS) | \$343,658 | \$310,777 |
| LESS: GENERAL AND ADMIN. | \$317,098 | \$427,798 |
| MARKETING EXPENSES | \$32,560 | \$47,929 |
| FINANCIAL EXPENSES | \$313,614 | \$257,156 |
| TOTAL EXPENSES | \$663,272 | \$732,883 |
| NET PROFIT/(LOSS) | (\$319,614) | (\$422,106) |

EXHIBIT VIII
MANUFACTURING ACCOUNTS FOR THE PERIOD
ENDING 31st. JANUARY 1987 AND 1988

| | 1987 | 1988 ** |
|-------------------|-------------|-------------|
| DIRECT MATERIALS | \$1,296,668 | \$1,754,429 |
| DIRECT LABOUR | \$59,631 | \$80,756 |
| FACTORY OVERHEADS | \$622,692 | \$667,699 |
| OTHER EXPENSES | \$71,788 | \$477,337 |
| | \$2,050,779 | \$2,980,221 |

EXHIBIT IX
BREAKDOWN OF FINANCIAL EXPENSES AS AT 31-1-87 & 88

| ITEMS | 1987 | 1988 ** |
|--------------------------|---------|---------|
| LOAN INTEREST | 31,801 | 35,120 |
| INTER-COMPANY INTEREST | 67,867 | 128,035 |
| INTEREST ON OVERDUE A/C. | 18,149 | 44,257 |
| FACTORING CHARGES | 0 | 17,200 |
| H/P AND OTHERS *** | 195,841 | 35,544 |
| Total | 313,658 | 257,156 |

Note: *** High financial charges for others was due to \$143,771 loss on foreign exchange.